

REMARKS

Claims 1-16 were examined and reported in the Office Action. Claims 1-16 are rejected. Claims 1-16 remain. Applicant's claim amendments are based on the original specification, e.g., Figures 3 and 5. Therefore, no new matter is added.

Applicant requests reconsideration of the application in view of the following remarks.

I. In The Drawings

It is asserted in the Office Action that the Figures must show the feature of "the predetermined shape is a trapezoid. As the feature was disclosed in the original specification, no new matter is added. Approval is respectfully requested.

It is also asserted that Figures 10-12 are objected to because the field graph in Figures 10-12 is poor in resolution. Applicant submits amended Figures 10-12 to overcome the objections. Approval is respectfully requested.

II. 35 U.S.C. § 102(b)

It is asserted in the Office Action that claims 1-16 are rejected under 35 U.S.C. § 102(b), as being anticipated by U. S. Patent No. 4,971,415 issued to Hara et al ("Hara"). Applicant respectfully traverses the aforementioned rejection for the following reasons.

According to MPEP §2131,

"'[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' (Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). 'The identical invention must be shown in as complete detail as is contained in the ... claim.' (Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, *i.e.*, identity of terminology is not required. (In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990))."

Applicant's claim 1 contains the limitations of

a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector having an electrode formed to have a predetermined shape by patterning an end portion of the upper cladding layer of the passive optical waveguide, the light deflector integrated with a laser diode made of the same material as the light deflector and located at an end of the core, wherein a reflective index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector through the core by the passive optical waveguide by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

Applicant's claim 8 contains the limitations of

a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector having an electrode formed to have a predetermined shape by patterning an end portion of the upper cladding layer of the passive optical waveguide, the light deflector integrated with a laser diode made of the same material as the light deflector and located at an end of the core, wherein a reflective index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector through the core by the passive optical waveguide by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

Applicant's claim 15 contains the limitations of

a light source with an integrated light deflector comprising a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals, an active area for generating the optical signals, and the light deflector formed by patterning the upper cladding layer in a predetermined shape at an end portion of the core of the passive optical waveguide, the light source and the integrated light deflector are made of a same material; a collimator lens for collimating a light beam emergent from the light source; and a diffraction grating for changing a diffraction angle depending on a wavelength of the light beam

through the collimator lens, wherein a propagation direction of the light beam guided to through the core to the deflector by the passive optical waveguide is changed by modifying a refractive index of the core under the predetermined shape by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

That is, Applicant's claimed invention asserts an integrated light deflector located at an end portion of the waveguide core and having an integrated light source. The light source and the light deflector are made of the same material. The refractive index of the core is modified when a current or electrical field is applied to a particular portion of the light deflector having a predetermined shape. The core has a high band gap so guided light beams are not absorbed. Tuning speed is, therefore, reduced. Reliability is increased over the prior art; size is minimized and manufacturing costs are reduced over the prior art.

Hara discloses a multibeam emitting device with light emitting elements monolithically formed on top of a semiconductor substrate. It is asserted in the Office Action that Hara discloses light deflector 235. Light deflector 235, however, is not located at an end of the core of a waveguide. Hara does not teach, disclose or suggest that the reflective index of the core under the light deflector is modified to change the propagation direction of a light beam guided to the light deflector through the core by applying a current or an electrical field to a particular portion of the light deflector. Thus, Hara does not teach, disclose or suggest the limitations in claim 1 of

... a light deflector having an electrode formed to have a predetermined shape by patterning an end portion of the upper cladding layer of the passive optical waveguide, the light deflector ... located at an end of the core, wherein a reflective index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector through the core by the passive optical waveguide by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

in claim 8 of

... a light deflector having an electrode formed to have a predetermined shape by patterning an end portion of the upper cladding layer of the passive optical waveguide, the light deflector integrated with a laser diode made of the same material as the light deflector and

located at an end of the core, wherein a reflective index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to the light deflector through the core.

in claim 15 of

...the light deflector formed by patterning the upper cladding layer in a predetermined shape at an end portion of the core ... a propagation direction of the light beam guided to through the core to the deflector by the passive optical waveguide is changed by modifying a refractive index of the core under the predetermined shape by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape.

Since Hara does not disclose, teach or suggest all of Applicant's amended claims 1, 8 and 15 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Hara. Thus, Applicant's amended claims 1, 8 and 15 are not anticipated by Hara. Additionally, the claims that directly or indirectly depend on claims 1, 8 and 15, namely claims 2-7, 9-14, and 16, respectively, are also not anticipated by Hara for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claims 1-16 are respectfully requested.

CONCLUSION

In view of the foregoing, it is submitted that claims 1-16 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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By: 

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on February 7, 2006.


Jean Svoboda